

CLAIMS

1. A test device for testing of analyte concentration in a fluid to be applied thereto, the device comprising:
- 5 a) a plurality of sensors arranged in a stack, each of said sensors carrying reagent means for producing an electrical signal in response to the concentration of analyte in an applied fluid, each of said sensors having a plurality of electrode tracks for transmitting said
- 10 electrical signal;
- b) a housing having an opening therein and containing the said stack of sensors;
- c) electrical contacts mounted in relation to the housing for engaging with electrode tracks on a sensor at
- 15 an engagement location;
- c) a meter connected to the said electrical contacts, having electronics means for producing a signal output which is dependent on the electrical signal from a sensor when the sensor is engaged with the said contacts;
- 20 d) a transport member rotatably mounted in the opening of the housing, having an axis of rotation which spans the opening and having an outer surface which is provided with a recessed region adapted to receive a single sensor from the stack;
- 25 e) spring means within the housing which urge the stack of sensors towards the transport member and which urge a single sensor into the said recess when the recess is suitably aligned adjacent to the stack;
- f) sealing means for making a moisture tight seal
- 30 between the transport member and the stack when the transport member is in a specified rotational position; and
- g) wherein rotation of the transport member with a sensor in the recessed region will transport the sensor to
- 35 the engagement location or to a position where the sensor can be moved to the engagement location, whereby electrode tracks of the sensor can engage with the said electrical

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contacts.

2. A test device as claimed in claim 1, wherein the sensors are stacked in a magazine within the housing, the magazine having a single opening which faces the transport member.

3. A test device as claimed in claim 2, wherein a first end of the sealing means forms a seal around the magazine and a second end of the sealing means locates in a groove in the transport member to form a seal therewith when the recessed region of the transport member is in register with the stack of sensors.

4. A test device as claimed in claim 3, wherein the sealing means comprises a retractable sleeve which sealingly engages in the groove of the transport member when in an extended configuration and which does not form a seal with the transport member when in a retracted configuration.

5. A test device as claimed in claim 1, wherein a pusher is provided to impart translational motion to a sensor mounted in the said recessed region during and/or after rotation of the transport member so as to bring the sensor to the engagement location.

6. A test device as claimed in claim 5, wherein the pusher is mounted on the transport member and a portion of the pusher is located in a helical track in the housing whereby rotation of the transport member imparts translational motion to the pusher.

7. A test device as claimed in claim 1, wherein the said opening is the only opening to the inside of the housing, and wherein the sealing means comprises a seal which is secured in relation to an outer surface of the transport

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member and which seals the opening of the housing when the transport member is in a specified rotational position.

8. A test device as claimed in claim 2, wherein the sealing means comprises a seal which ~~is~~ secured in relation to an outer surface of the transport member and which seals the opening of the magazine when the transport member is in a specified rotational position.

9. A test device as claimed in claim 1, wherein the said opening is the only opening to the ~~inside~~ of the housing, and wherein the sealing means comprises a seal provided on a door which is adapted to fit the said opening so that the moisture tight seal is effected by closure of the door; wherein the door is operatively connected to the transport member so that the door will be open when the transport member is in a first rotational position and closed when the transport member is in a second rotational position.

10. A test device as claimed in claim 2, wherein the sealing means comprises a seal provided on a door which is adapted to fit the opening of the magazine so that the moisture tight seal is effected by closure of the door; wherein the door is operatively connected to the transport member so that the door will be open when the transport member is in a first rotational position and closed when the transport member is in a second rotational position.

11. A test device as claimed in claim 9, wherein the door is provided with one or more teeth ~~which~~ restrain movement of the stack of sensors against the force of the spring means.

12. A test device as claimed in claim 11, wherein the transport member is provided with at least one blade which takes over the function of restraining the stack of

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sensors when the door is opened.

13. A test device as claimed in claim 9, wherein the door is pivotally mounted in relation to the housing.

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14. A test device as claimed in claim 1, wherein the transport member is operationally connected to a return spring which urges the transport member to adopt a specified rotational position at which the sealing means can provide a moisture proof seal between the stack of sensors and the transport member.

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15. A test device as claimed in claim 1, wherein a portion of the sensor to which a fluid sample is to be applied is not supported by the transport member when in the engagement location.

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16. A test device as claimed in claim 1, wherein the transport member has an external profile which is substantially circular in cross section.

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17. A test device for testing of analyte concentration in a fluid to be applied thereto, comprising: a housing containing a stack of test strips and having an opening therein; a transport member rotatably mounted in the opening of the housing, having an axis of rotation which spans the opening; the transport member having a recessed region adapted to receive a single test strip; and spring means which urge the stack towards the transport member; wherein rotation of the transport member with a test strip in the recessed region thereof will bring the said test strip to an engagement location at which it can be engaged with electrical contacts of a meter and at which the test strip will be accessible to permit a user to apply a drop of fluid thereto.

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18. A test device as claimed in claim 17, further

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including sealing means which make a moisture-proof seal between the transport member and the stack when the transport member is in a specified rotational position.

5 19. A test device as claimed in claim 1, wherein each sensor in the or each stack comprises a base member having a working area to which the fluid is to be applied, containing the reagent means, and a non-working area adjacent to the working area, wherein the total thickness
10 of the sensor in at least a portion of the non-working area is at least as great as the total thickness of the sensor in the working area.

15 20. A test device as claimed in claim 19, wherein the total thickness of the sensor in at least a part of the non-working area is greater than the total thickness of the sensor in the working area.

20 21. A test device for testing of analyte concentration in a fluid to be applied thereto, the device comprising:

25 a) a plurality of sensors arranged in a stack, each of said sensors carrying reagent means for producing an electrical signal in response to the concentration of analyte in an applied fluid, each of said sensors having a plurality of electrode tracks for transmitting said electrical signal;

b) a housing having an opening therein and containing the said stack of sensors;

30 c) electrical contacts mounted in relation to the housing for engaging with electrode tracks on a sensor at an engagement location;

35 c) a meter connected to the said electrical contacts, having electronics means for producing a signal output which is dependent on the electrical signal from a sensor when the sensor is engaged with the said contacts;

d) a transport member rotatably mounted in the opening of the housing, having an outer surface which is provided

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with a recessed region adapted to receive a single sensor from the stack;

5 e) spring means within the housing which urge the stack of sensors towards the transport member in a direction substantially perpendicular to a plane containing the axis of rotation of the transport member, and which urge a single sensor into the said recess when the recess is suitably aligned adjacent to the stack;

10 f) sealing means for making a moisture tight seal between the transport member and the stack when the transport member is in a specified rotational position; and

15 g) wherein rotation of the transport member with a sensor in the recessed region will transport the sensor to the engagement location or to a position where the sensor can be moved to the engagement location, whereby electrode tracks of the sensor can engage with the said electrical contacts.

20 22. A test device as claimed in claim 1, further including load means for applying a compressive load to a sensor during at least a part of the time when the said sensor is located in the recessed region of the transport member.

25 23. A test device as claimed in claim 1, further including non-return means which prevent or inhibit transport of a sensor from the engagement location to the magazine and which prevent or inhibit reintroduction of an
30 ejected used sensor to the engagement location.

24. A test device as claimed in claim 23, wherein the said non-return means and the said load means comprise a single resilient and flexible component.

35 25. A test device as claimed in claim 1, further including ratchet means associated with the stack of

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sensors which prevent or inhibit movement of the stack in a direction opposite to that in which the spring means urges the stack.

- 5 26. A test device for testing of analyte concentration in
a fluid to be applied thereto, comprising: a housing
containing a stack of test strips and having an opening
therein; a transport member rotatably mounted in the
opening of the housing; the transport member having a
10 recessed region adapted to receive a single test strip;
and spring means which urge the stack towards the
transport member; wherein rotation of the transport member
with a test strip in the recessed region thereof will
bring the said test strip to an engagement location at
15 which it can be engaged with electrical contacts of a
meter and at which the test strip will be accessible to
permit a user to apply a drop of fluid thereto or to a
position from which the sensor can be moved to the
engagement location; wherein load means are provided
20 between the transport member and a housing thereof, for
applying a compressive load to a sensor during at least a
part of the time when the said sensor is located in the
recessed region of the transport member.
- 25 27. A test device as claimed in claim 1, suitable for use
in testing glucose concentration in blood.

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